

REMARKS

With the foregoing amendment claims 1, 2, 4-7, 9-17, and 19-24 are pending in the application. Claims 2, 6, 7, 9-11, 16, 17 and 19 are amended. Claims 3, 8 and 18 are canceled. And claims 22-24 are added. Claims 1, 2, 4 and 22 are independent. No new matter has been added by the amendments.

Objection to the Drawings

A replacement drawing sheet is submitted herewith to overcome the objection. The replacement drawing sheet includes new figures 9 and 10. Applicants respectfully submit that the new figures overcome the Examiner's objection.

Claim Rejections Under 35 U.S.C. 112

Claims 6-11 and 16-19 stand rejected under 35 U.S.C. 112, second paragraph as being indefinite. The claims have been amended to overcome this rejection.

Claim Rejections Under 35 U.S.C. 103

Claims 1-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Pat. No. 4,352,080 to Mitsui, et al. in view of European Pat. No. 1,466,880 to Hirst, et al. Applicants respectfully traverse.

Applicants assert that there is no suggestion or motivation to combine the teachings of Mitsui with the teachings of Hirst. Hirst is directed to E-shaped and I-shaped electromagnetic devices. However, Mitsui teaches away from E and I shaped devices. Specifically, Mitsui states,

The most popular conventional ferrite core is an E-shaped with the identical cross section, or alternatively, a combination of the E-shaped core and the I-shaped core is utilized. However, that core has the disadvantages that the size is large, the shield effect is not perfect, and further since a bobbin must be rectangular, windings are folded and thus, the insulation is not sufficient and the automatic winding is impossible.

Mitsui, col. 1, lines 44-51. As is evident from the above quote, Mitsui teaches that E & I shaped cores are inferior and therefore Mitsui teaches away from their use. Because Hirst teaches and suggests the use of E & I shaped elements, while Mitsui teaches away from such shapes, there is no suggestion or motivation to combine the references. Accordingly, the rejection of claims 1-21 in view of Mitsui combined with Hirst should be withdrawn.

Moreover, even if we were to assume Mitsui and Hirst can be combined, claims 1-21 would still be patentable in view of the combination. This is so because the combination does not teach or suggest all of the claimed features.

With respect to claim 1, neither Mitsui nor Hirst teach or suggest, *inter alia*, “a symmetrical double-E core, which has . . . a cuboid center limb,” as is recited in claim 1. As discussed above, Mitsui teaches away from double-E cores. Moreover, Mitsui does not teach or suggest a cuboid center limb. Rather, Mitsui teaches a circular center limb. Furthermore, Hirst does not disclose or suggest a double-E core, let alone a double-E core with a cuboid center limb. Hirst merely discloses E and I shaped laminates. A laminate is a thin member, not a double-E core nor cuboidal in shape. Thus, neither Mitsui nor Hirst disclose or even suggest a cuboidal center limb.

Additionally, neither Mitsui nor Hirst teach or suggest that “a longitudinal cross sectional area of said center limb is greater than 90 mm² . . . with said double-E core being located in a component volume of less than 26.5 mm x 26.5 mm x 15 mm (width x depth x height),” as is also recited in claim 1. Applicants respectfully submit that it is not obvious to choose such a large center limb (app. 90 mm²) in a construction element volume smaller than 26.5 mm x 26.5 mm x 15 mm (width x depth x height), as very little space remains for the winding-window. The effective winding window becomes even smaller due to the wall thickness of the coil shell, core tolerances and safety clearances. Such winding-space losses are basically independent from the size of the winding-window and can be considered as constant place losses. When winding-windows are small from the very beginning, such winding-space losses have an even bigger affect. Due to this, it is very difficult to provide for the required minimum number of windings having an acceptable wire cross-section. It is therefore obvious that a person having ordinary skill in the art would assume that a center limb of more than 90 mm² is much too large for an overall volume of less than 26.5 mm x

26.5 mm x 15 mm. Accordingly, for these additional reasons, Applicants respectfully submit that claim 1 and the claims that depend therefrom are patentable over Mitsui combined with Hirst.

With respect to independent claims 2 and 4, each of these claims, like claim 1, requires that “a longitudinal cross sectional area of said center limb is greater than 90 mm² ... with said core being located in a component volume of less than 26.5 mm x 26.5 mm x 15 mm (width x depth x height).” Accordingly, the remarks above for claim 1 apply equally to claims 2 and 4 and the claims that depend therefrom. Thus, like claim 1, claims 2-4 and the claims that depend therefrom are patentable over Mitsui combined with Hirst.

New Claims

New claims 22-24 are added. Support for new claims 22-24 can be found throughout the specification. For example, support can be found at pages 5-7. New claims 22-24 are patentable over the art of record for at least some of the reasons given above with respect to claims 1-21.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections, and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

RESPECTFULLY SUBMITTED,					
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Amendments to the Drawings

The attached drawing sheet includes new figures 9 and 10. This sheet, which includes figures 1, 2, 9, and 10, replaces the original sheet including figures 1-2.

Attachment: Replacement Sheet